characteristics were observed between the exercise therapy group and the control group. The JKOM score (p<0.001 and p<0.001, respectively) and VAS score (p<0.001 and p<0.001, respectively) at 12 weeks of the patients with both the exercise therapy and control groups were significantly reduced in comparison to those at baseline. The hs-CRP levels remained unchanged in patients with both groups (p=0.267 and p=0.137, respectively). The sIL-6 levels of the patients in the exercise therapy group were significantly decreased (p=0.021) in comparison to those of the patients at baseline, but sIL-6 levels of the patients in the control group were not.
Conclusions: The serum IL-6 levels in patients with OA were significantly reduced by the exercise therapy, while sIL-6 levels were unchanged by NSAID, suggesting that exercise therapy may exert anti-inflammatory effects in knee OA.

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THE EFFECTS OF KINESIO TAPING ON PAIN, MUSCLE STRENGHT AND FUNCTION IN SUBJECTS WITH KNEE OSTEOARHRITIS: PILOT STUDY

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Purpose: Osteoarthritis which is a major health problem is the most common chronic dejenerative joint disorder characterized by increasing joint pain, stifness and limitations in range of motion (ROM). Management aims to control pain and reduce disability. The American College of Rheumatology recommended taping on the osteoarthritic knees recently. However there is still insufficient evidence about which taping intervention is effective. Kinesio tape, an alternative taping technique, has been theorized to improve a variety of physiological problems, including pain, based on the functions of the tape. The immediate effect of kinesio taping on pain has been well identified by previous studies however short-term benefits in the management of knee osteoarthritis has not been reported yet. The purpose of the pilot study was to investigate the effect of kinesio taping on pain, muscle strenght and Aggregated Locomotor Function (ALF) score in knee osteoarthritis.
Methods: Sixteen patients (20 knees) with knee osteoarthritis according to Kellegrence Lawrence scale grade 2 or 3 (12 female, 4 male) with a mean age of 53,31±5,91 years included to the study. Patients received written and verbal explanations of the purpose of the study and of the procedures to be applied. They signed informed consent forms. The assessments were performed at baseline, after the initial kinesio taping application, after the third kinesio taping application and at exit following the fourth consultation. The pain level was evaluated with a Visual Analogue Scale (VAS) in resting and activity time. Muscle strength was evaluated by using Handheld dynamometry (Lafeyette Instrument®, Lafayette, IN). The functional status of the patients was evaluated by ALF score. The ALF score is a sum of the mean time (seconds) taken to complete three physical function tasks: walking eight meters, ascending and descending seven stairs, and transferring two meters from a sitting to standing position. Each task was carried out separately with a break in between. Patients received 3 kinesio taping application. There was a 3-4 day interval between each application, and the total duration of the intervention period in this study ranged from 12 to 16 days. Taping intervention were applied by certificated physical therapist on knee, quadriceps and hamstring muscles with 25% and without tension.
Results: The mean body mass index and disease duration was found 30.57±3,46 kg/m2 4.11±2.01 years, respectively. Significant improvements from baseline were detected in pain and ALF scores in all tasks following the initial treatment (p &lt 0.05), except in the muscle strength (p &gt 0.05). The walking time and the pain in activity significantly reduced after three kinesio taping applications (p=0.01). The ascending and descending stairs times and the pain in activity significantly improved from baseline to exit. (p=0.001 and p=0.06, respectively).
Conclusions: The results pointed out that possible clinical benefits of initial kinesio taping application on pain and physical function of patients with knee osteoarthritis while no effect in further applications. Further investigation including different kinesio taping application methods with larger sample size are required to reveal long term effects.

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ASSOCIATION OF STRENGTHENING, NEUROMUSCULAR TRAINING AND TRUNK STABILITY EXERCISES IMPROVES STRENGTH, PHYSICAL FUNCTION AND SYMPTOMS IN MEN WITH MILD KNEE OA

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Purpose: The purpose of the present study was to investigate the effects of the association of strengthening, neuromuscular training and trunk stability exercises in strength, symptoms and physical function in man with mild knee OA
Methods: A group of 21 patients diagnosed with mild knee OA (GOA) (Grade II - KL) (age 56±6 years; height 1,73±0,07 meters; weight 84±13,2 kilograms; body mass index 28±4,3 kg/m2) participated in this study. The GOA was composed of men diagnosed with mild (Grade II - KL) knee OA (ACR - American College of Rheumatology). Pain, stiffness and physical function were assessed by the subscores of Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC). Quadriceps, hamstrings, abductors and adductors strength were assessed by concentric isokinetic evaluation. The knee isokinetic evaluation was performed at 60 and 120°/s, and hip at 30°/s. Symptoms, physical function, knee and hip strength were measured before and after intervention. Intervention was consisted by strengthening, neuromuscular training and trunk stability exercises, twice a week, for 8 weeks, with each session lasting about 90 minutes. Data were analyzed using the Statistica® 7.0 software (StatSoft, Inc., Tulsa, USA). Initially descriptive values (mean and standard deviation) were obtained for all data. Then we verified the normality with Shapiro-Wilks test. For quadriceps and hamstrings strength comparison analysis the MANOVA one way test was used. Abductor and adductor strength were analyzed by student t test, using the $\alpha \leq 0.05$. WOMAC (total score, pain, stiffness and physical function) was analyzed by Wilcoxon test (αBonf=0,016).
Results: GOA showed significant improvement in pain (p=0,009), physical function (p=0,015) and total score of WOMAC (p=0,009), quadriceps 60 and 120°/s (p=0,006 and p=0,013) and abductor strength (p=0,042). There was no difference before and after intervention in stiffness (p=0,034), hamstring and adductor strength (p=0,85 and p=0,6, respectively).
Conclusions: An intervention composed by strengthening, neuromuscular training and trunk stability exercises improves pain, physical function, quadriceps and abductor strength in men with mild knee OA.

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COMPARISON OF TWO DIFFERENT MOBILIZATION TECHNIQUES IN THE MANAGEMENT OF OSTEOARTHRITIS OF THE KNEE: A RANDOMIZED CLINICAL TRIAL

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Purpose: In many physical therapy programs for subjects with osteoarthritis of the knee are an important part of the intervention. However, effectiveness of mobilization of various techniques which are Mulligan's Mobilization with Movement which is easy to apply and popular in the world in recent years and Passive Mobilization which is proven to be effective in the treatment of joint limitation in improving knee function is still unknown. The purpose of this study was to compare the effectiveness of Mulligan's Mobilization with Movement (MWM) techniques and Passive Joint Mobilization (PJM) techniques in subjects with osteoarthritis of the knee.
Methods: Fourty-eight participants with osteoarthritis of the knee were randomly assigned to a MWM group (n=23) or a PJM group (n=25). Participants in MWM group received MWM and exercise. MWM consisted of a sustained manual glide of the tibia (medial, lateral, or rotation) during active knee flexion and extension (three sets of 10 repetitions). The participants in PJM group received PJM techniques and exercise. Passive joint mobilization includes knee distraction, dorsal glide, ventral glide and patella gides in all directions. All groups performed the exercise program which included flexibility, strenght and active range of motion. The duration of treatment was a maximum of 5 weeks (12 sessions) in both groups. The subjects were assessed before and after treatment. The pain level was evaluated with a Visual